

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT: Presta, Leonard G.
Jardieu, Paula M.

(ii) TITLE OF INVENTION: Antibody Mutants

(iii) NUMBER OF SEQUENCES: 17

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: Genentech, Inc.
(B) STREET: 1 DNA Way
(C) CITY: South San Francisco
(D) STATE: California
(E) COUNTRY: USA
(F) ZIP: 94080

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk
(B) COMPUTER: IBM PC compatible
(C) OPERATING SYSTEM: PC-DOS/MS-DOS
(D) SOFTWARE: WinPatin (Genentech)

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER:
(B) FILING DATE:
(C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: 60/031,945
(B) FILING DATE: 11/27/96

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Lee, Wendy M.
(B) REGISTRATION NUMBER: 40,378
(C) REFERENCE/DOCKET NUMBER: P1064R1

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 650/225-1994
(B) TELEFAX: 650/952-9881

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Asp	Val	Gln	Ile	Thr	Gln	Ser	Pro	Ser	Tyr	Leu	Ala	Ala	Ser	Pro
1				5					10					15
Gly	Glu	Thr	Ile	Ser	Ile	Asn	Cys	Arg	Ala	Ser	Lys	Thr	Ile	Ser
				20					25					30
Lys	Tyr	Leu	Ala	Trp	Tyr	Gln	Glu	Lys	Pro	Gly	Lys	Thr	Asn	Lys
				35					40					45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Ile Pro Ser
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65 70 75

Ser Ser Leu Glu Pro Glu Asp Phe Ala Met Tyr Tyr Cys Gln Gln
80 85 90

His Asn Glu Tyr Pro Leu Thr Phe Gly Thr Gly Thr Lys Leu Glu
95 100 105

Leu Lys Arg
108

(2) INFORMATION FOR SEQ ID NO:2:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Lys Thr Ile Ser
20 25 30

Lys Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
35 40 45

Leu Leu Ile Tyr Ser Gly Ser Thr Leu Gln Ser Gly Val Pro Ser
50 55 60

Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65 70 75

Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
80 85 90

His Asn Glu Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu
95 100 105

Ile Lys Arg
108

(2) INFORMATION FOR SEQ ID NO:3:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 108 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser
 20 25 30
 Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
 35 40 45
 5 Leu Leu Ile Tyr Ala Ala Ser Ser Leu Glu Ser Gly Val Pro Ser
 50 55 60
 10 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 65 70 75
 Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln
 80 85 90
 15 Tyr Asn Ser Leu Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu
 95 100 105
 Ile Lys Arg
 108
 20

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear
 25

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

30 Glu Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Met Arg Pro Gly
 1 5 10 15
 Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr
 20 25 30
 35 Gly His Trp Met Asn Trp Val Arg Gln Arg Pro Gly Gln Gly Leu
 35 40 45
 40 Glu Trp Ile Gly Met Ile His Pro Ser Asp Ser Glu Thr Arg Leu
 50 55 60
 Asn Gln Lys Phe Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser
 65 70 75
 45 Ser Ser Ser Ala Tyr Met Gln Leu Ser Ser Pro Thr Ser Glu Asp
 80 85 90
 Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
 95 100 105
 50 Thr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr Val Ser
 110 115 120
 Ser
 121
 55

(2) INFORMATION FOR SEQ ID NO:5:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	
	1				5					10					15	
10	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Thr	
					20					25					30	
	Gly	His	Trp	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	
15					35					40					45	
	Glu	Trp	Val	Gly	Met	Ile	His	Pro	Ser	Asp	Ser	Glu	Thr	Arg	Tyr	
					50					55					60	
20	Asn	Gln	Lys	Phe	Lys	Asp	Arg	Phe	Thr	Ile	Ser	Val	Asp	Lys	Ser	
					65					70					75	
	Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	
					80					85					90	
25	Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Arg	Gly	Ile	Tyr	Phe	Tyr	Gly	Thr	
					95					100					105	
	Thr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	
30					110					115					120	
	Ser															
	121															

35 (2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 113 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

40 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

	Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	
	1				5					10					15	
45	Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	
					20					25					30	
	Ser	Tyr	Ala	Met	Ser	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	
50					35					40					45	
	Glu	Trp	Val	Ser	Val	Ile	Ser	Gly	Asp	Gly	Gly	Ser	Thr	Tyr	Tyr	
					50					55					60	
55	Ala	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	
					65					70					75	

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Phe Asp Tyr Trp Gly Gln
95 100 105

Gly Thr Leu Val Thr Val Ser Ser
110 113

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 184 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Lys Gly Asn Val Asp Leu Val Phe Leu Phe Asp Gly Ser Met Ser
1 5 10 15

Leu Gln Pro Asp Glu Phe Gln Lys Ile Leu Asp Phe Met Lys Asp
20 25 30

Val Met Lys Lys Leu Ser Asn Thr Ser Tyr Gln Phe Ala Ala Val
35 40 45

Gln Phe Ser Thr Ser Tyr Lys Thr Glu Phe Asp Phe Ser Asp Tyr
50 55 60

Val Lys Arg Lys Asp Pro Asp Ala Leu Leu Lys His Val Lys His
65 70 75

Met Leu Leu Leu Thr Asn Thr Phe Gly Ala Ile Asn Tyr Val Ala
80 85 90

Thr Glu Val Phe Arg Glu Glu Leu Gly Ala Arg Pro Asp Ala Thr
95 100 105

Lys Val Leu Ile Ile Ile Thr Asp Gly Glu Ala Thr Asp Ser Gly
110 115 120

Asn Ile Asp Ala Ala Lys Asp Ile Ile Arg Tyr Ile Ile Gly Ile
125 130 135

Gly Lys His Phe Gln Thr Lys Glu Ser Gln Glu Thr Leu His Lys
140 145 150

Phe Ala Ser Lys Pro Ala Ser Glu Phe Val Lys Ile Leu Asp Thr
155 160 165

Phe Glu Lys Leu Lys Asp Leu Phe Thr Glu Leu Gln Lys Lys Ile
170 175 180

Tyr Val Ile Glu
184

(2) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 184 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

5 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

	Lys	Gly	Asn	Val	Asp	Leu	Ile	Phe	Leu	Phe	Asp	Gly	Ser	Met	Ser	
	1				5					10					15	
10	Leu	Gln	Pro	Asp	Glu	Phe	Gln	Lys	Ile	Leu	Asp	Phe	Met	Lys	Asp	
					20					25					30	
	Val	Met	Lys	Lys	Leu	Ser	Asn	Thr	Ser	Tyr	Gln	Phe	Ala	Ala	Val	
					35					40					45	
15	Gln	Phe	Ser	Thr	Ser	Tyr	Lys	Thr	Glu	Phe	Asp	Phe	Ser	Asp	Tyr	
					50					55					60	
	Val	Lys	Gln	Lys	Asp	Pro	Asp	Ala	Leu	Leu	Glu	His	Val	Lys	His	
20					65					70					75	
	Met	Leu	Leu	Leu	Thr	Asn	Thr	Phe	Gly	Ala	Ile	Asn	Tyr	Val	Ala	
					80					85					90	
25	Thr	Glu	Val	Phe	Arg	Glu	Glu	Leu	Gly	Ala	Arg	Pro	Asp	Ala	Thr	
					95					100					105	
	Lys	Val	Leu	Ile	Ile	Ile	Thr	Asp	Gly	Glu	Ala	Thr	Asp	Ser	Gly	
					110					115					120	
30	Asn	Ile	Asp	Ala	Ala	Lys	Asp	Ile	Ile	Arg	Tyr	Ile	Ile	Gly	Ile	
					125					130					135	
	Gly	Lys	His	Phe	Gln	Thr	Lys	Glu	Ser	Gln	Glu	Thr	Leu	His	Lys	
35					140					145					150	
	Phe	Ala	Ser	Lys	Pro	Ala	Ser	Glu	Phe	Val	Lys	Ile	Leu	Asp	Thr	
					155					160					165	
40	Phe	Glu	Lys	Leu	Lys	Asp	Leu	Phe	Thr	Glu	Leu	Gln	Lys	Lys	Ile	
					170					175					180	
	Tyr	Ala	Ile	Glu												
					184											

45 (2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 7 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

55	Lys	His	Val	Lys	His	Met	Leu
	1				5		7

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Pro Lys Asn Ser Ser Met Ile Ser Asn Thr Pro
1 5 10 11

(2) INFORMATION FOR SEQ ID NO:11:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

His Gln Ser Leu Gly Thr Gln
1 5 7

(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

His Gln Asn Leu Ser Asp Gly Lys
1 5 8

(2) INFORMATION FOR SEQ ID NO:13:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

His Gln Asn Ile Ser Asp Gly Lys
1 5 8

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: Amino Acid
(D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Val Ile Ser Ser His Leu Gly Gln
1 5 8

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

CACTTTGGAT ACCGCGTCCT GCAGGT 26

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 26 base pairs
 (B) TYPE: Nucleic Acid
 (C) STRANDEDNESS: Single
 (D) TOPOLOGY: Linear

(iv) antisense

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CATCCTGCAG GTCTGCCTTC AGGTCA 26

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 121 amino acids
 (B) TYPE: Amino Acid
 (D) TOPOLOGY: Linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly
 1 5 10 15

Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Tyr Ser Phe Thr
 20 25 30

Gly His Trp Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 35 40 45

Glu Trp Val Gly Met Ile Ala Pro Ala Ser Ser Ser Thr Arg Tyr
 50 55 60

Asn Gln Lys Phe Lys Asp Arg Phe Thr Ile Ser Val Asp Lys Ser
 65 70 75

Lys Asn Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
 80 85 90

Thr Ala Val Tyr Tyr Cys Ala Arg Gly Ile Tyr Phe Tyr Gly Thr
 95 100 105

P1064R1C1

Express Mail No. EV 351932389 US

Thr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser
				110					115					120

Ser
121

5